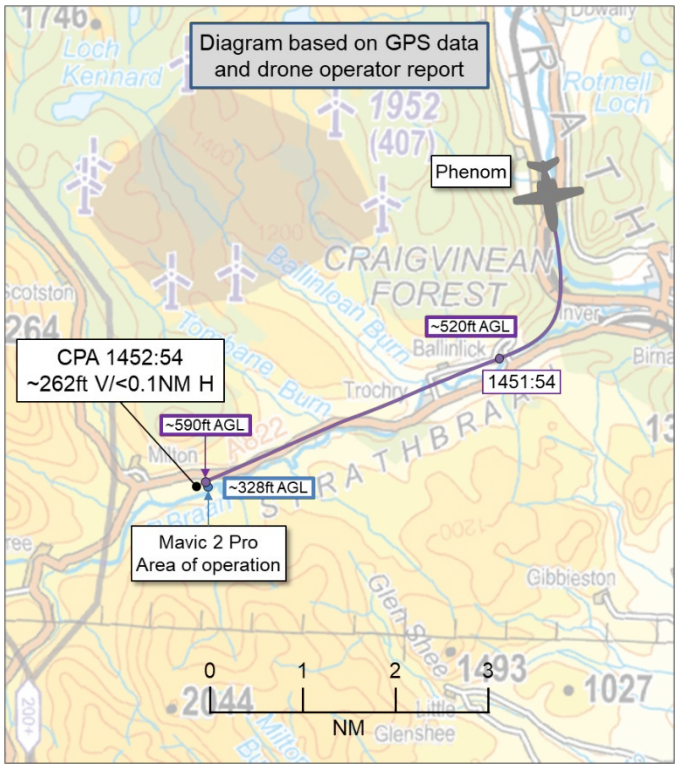
AIRPROX REPORT No 2025160

Date: 16 Jul 2025 Time: 1453Z Position: 5632N 00344W Location: 0.75NM ESE of Milton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Mavic 2 Pro	Phenom
Operator	Civ UAS	HQ Air (Trg)
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	VLOS	VFR
Service	None	Listening Out
Provider	N/A	LL Common
Altitude	~1053ft	~1315ft
Transponder	Not fitted	A, C, S
Reported		
Colours	Grey	White and Blue
Lighting	None	Strobes & Navs
Conditions	VMC	VMC
Visibility	5-10km	5-10km
Altitude/FL	328ft AGL	500ft AGL
Altimeter	AGL	Rad Alt
Heading	NR	260°
Speed	NR	210kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	None
Separation at CPA		
Reported	40m V/0ft H	Not seen
Recorded	~262ft V/<0.1NM H	



THE MAVIC 2 PRO PILOT reports that, after taking off at 1440, the drone was flying a pre-made autonomous flight plan. The drone's altitude was 100m (328ft) AGL and was in sight during the whole flight. At 1452 they had the drone flying almost directly overhead. The Phenom flew nearly directly over the drone. [They noted that the Phenom] was flying at 1175ft (354m) AMSL[1] [according to tracking software].[2] They were stood at 222m (728ft) AMSL (OS locater app). Their [Mavic 2 Pro] was flying at 322m (1056ft) AMSL. The drone and aircraft were approximately 40-50m apart. Once double checking the airspace was clear visually, they landed the drone at 1456 and double-checked the airspace for restrictions. There were none in the area.

The pilot assessed the risk of collision as 'High'.

THE PHENOM PILOT reports they were on a low-level route which was completed before climbing up for a medium level transit from 5NM south of RAF Leuchars. There had been nothing significant to report on the sortie.

As a crew, they had since been informed that an Airprox had been submitted in the vicinity of Perth from a drone operator. On looking back over CADS and Low Flying charts that were used on the day with NOTAMs, there appeared to be no information to notify them of UAS operations and both crew members were certain that no UAS was ever spotted during the sortie. The aircraft was flown at or above 500ft Minimum Separation Distance (MSD) throughout the sortie.

[1] 1175ft AMSL reported altitude for the Phenom equates to a reported height of 447ft AGL based on the drone operator's position. The Phenom's recorded heights and altitudes were taken directly from the Phenom's navigation database
[2] The flight tracking software used by the Mavic Pro pilot is known to exhibit inaccuracies in multilateration function, particularly below altitudes of 5,000-10,000ft. It operates via an ad-hoc receiver network and is not certified to surveillance performance standard. Where discrepancies occur, certified IGC & GPS data are considered more reliable.

Factual Background

The weather at Perth Airport was recorded as follows:

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METAR EGPH 161450Z 08007KT 040V140 9999 SCT032 21/14 Q1017
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Analysis and Investigation

3 FTS

With limited information available concerning the circumstances of the Airprox, it is acknowledged that the 3 FTS investigation is somewhat restricted. However, it has been possible to confirm that the Phenom was at or above 500ft Minimum Separation Distance (MSD) at all times, and that there were no NOTAMs advising airspace users of UAS operations above 400ft. Likewise, there were no CADS conflictions when the routeing was planned and briefed pre-flight. Finally, the crew did not see the drone and did not raise any concerns about UAS operations during the sortie. Assuming that the drone was being operated at or below 400ft AGL, then there should have been at least 100ft clearance between the two. Whilst this does not seem like a lot of separation and would have looked very close to the drone operator, it forms the basis of our safety case for conducting essential Phenom low-level training whilst avoiding conflict with UK0-UK6 Class drones operating at or below 400ft AGL without a NOTAM. For those drone operators who are not required to NOTAM their activity, we would strongly support a voluntary web-based means of highlighting planned drone operations so that we can take this into consideration when planning low-level events.

UKAB Secretariat

Neither aircraft appeared on the NATS radar replay. An analysis of alternative aircraft tracking software revealed the Phenom as intermittently detected via ADS-B sources. However, for the majority of its low-level sortie, the Phenom was not detected and therefore was not visible on ADS-B sources at the time of the Airprox. The Phenom pilot provided their navigation data file, which was used in conjunction with the position and altitude information extracted from the drone's data, as supplied by the operator. CPA was assessed to have occurred at 1452:54 with approximately 262ft vertical and less than 0.1NM lateral separation.

The Mavic 2 Pro and Phenom pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[3] During the flight, the remote pilot shall keep the unmanned aircraft in VLOS and maintain a thorough visual scan of the airspace surrounding the unmanned aircraft in order to avoid any risk of collision with any manned aircraft. The remote pilot shall discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property.[4]

Comments

HQ Air Command

This incident again highlights the weakness of the see and avoid barrier in relation to drone operations. The Mavic 2 Pro is a relatively small drone and it is understandable that the Phenom crew did not visually acquire it, especially as they were unaware that it was operating in that area. Given the class of drone and the nature of the sortie, there was no requirement for the drone operator to notify their activity, but this did prevent deconfliction in the planning phase. From the drone operator's perspective, the Phenom was approaching from lower ground. As the Phenom crew made their westbound turn in the vicinity of Dunkeld at 500ft AGL they were approximately 800ft ASML, compared to 728ft AMSL for the Drone Operator. Given the terrain, and the height and speed of the Phenom, this was a late spot for the drone operator which limited their ability to react. In this instance a collision was avoided due to the drone remaining below 400ft AGL in accordance

[3] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[4] Assimilated Regulation (EU) 2019/947- UAS.OPEN.060 Responsibilities of the remote pilot (2)(b)

with the Drone and Model Aircraft Code and the Phenom crew remaining above 500ft MSD in accordance with their authorisation. They thanked the drone operator for highlighting this incident.

Summary

An Airprox was reported when a Mavic 2 Pro and a Phenom flew into proximity in the vicinity of Milton at 1453Z on Wednesday 16th July 2025. The Mavic 2 Pro pilot was operating under VLOS in VMC not in receipt of a FIS, and the Phenom pilot was operating under VFR in VMC communicating on the Low-Level Common frequency.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, GPS track data and a report from the appropriate operating authority. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first looked at the actions of the Mavic 2 Pro pilot and noted that they had been operating their drone in the Open Category below 400ft. The Board noted that, in accordance with existing procedures, no NOTAM was required for the flight. A discussion followed regarding the potential for drone operations to be reported in a way that would enable low-level traffic to check for conflicts. Members noted that platforms allowing operators to publish their route or position were available at the time of the flight; however, these services have since become unavailable following the provider ceasing operations, and the Board expressed disappointment at this development. The Board also noted that the Mavic 2 Pro pilot had no means of knowing to expect the Phenom, and members agreed that the Mavic 2 Pro pilot had had no situational awareness of the Phenom's presence (**CF1**). The Board noted that the low level of the Phenom relative to the Mavic 2 Pro pilot may have been particularly disconcerting to the drone operator as it would have been approximately 80ft above them at first sight but maintaining 500ft MSD. Members agreed that the Mavic 2 Pro pilot had sighted the Phenom at a late stage (**CF3**) but had not needed to take avoiding action as both pilots were operating within their required operational parameters.

Turning their attention to the actions of the Phenom pilot, the Board noted that they had been communicating on the Low-Level Common frequency; however, this had not provided any information from the Mavic 2 Pro pilot, who had not utilised that facility. The Board also noted that the electronic conspicuity equipment fitted to the Phenom had been unable to detect the Mavic 2 Pro (**CF2**). Members agreed, therefore, that the Phenom pilot had had no situational awareness of the presence of the Mavic 2 Pro (**CF1**). The Board agreed that, due to the combined effect of the Phenom's speed of operation and the relatively small size of the drone, the Phenom pilot had not visually acquired the Mavic 2 Pro drone (**CF4**).

Finalising their discussion and in determining the risk category, the Board noted that neither pilot had situational awareness of the presence of the other aircraft and that the Phenom pilot had not seen the Mavic 2 Pro, whilst the Mavic 2 Pro pilot had only seen the Phenom immediately prior to CPA. However, members agreed that both pilots had operated within the parameters of their respective regulations, which provided sufficient separation. Therefore, the Board concluded that safety standards and parameters had pertained and, as such, assigned Risk Category E to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2025160			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
1	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			

2	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
	• See and Avoid			
3	Human Factors	• Identification/ Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
4	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: E.

Safety Barrier Assessment[5]

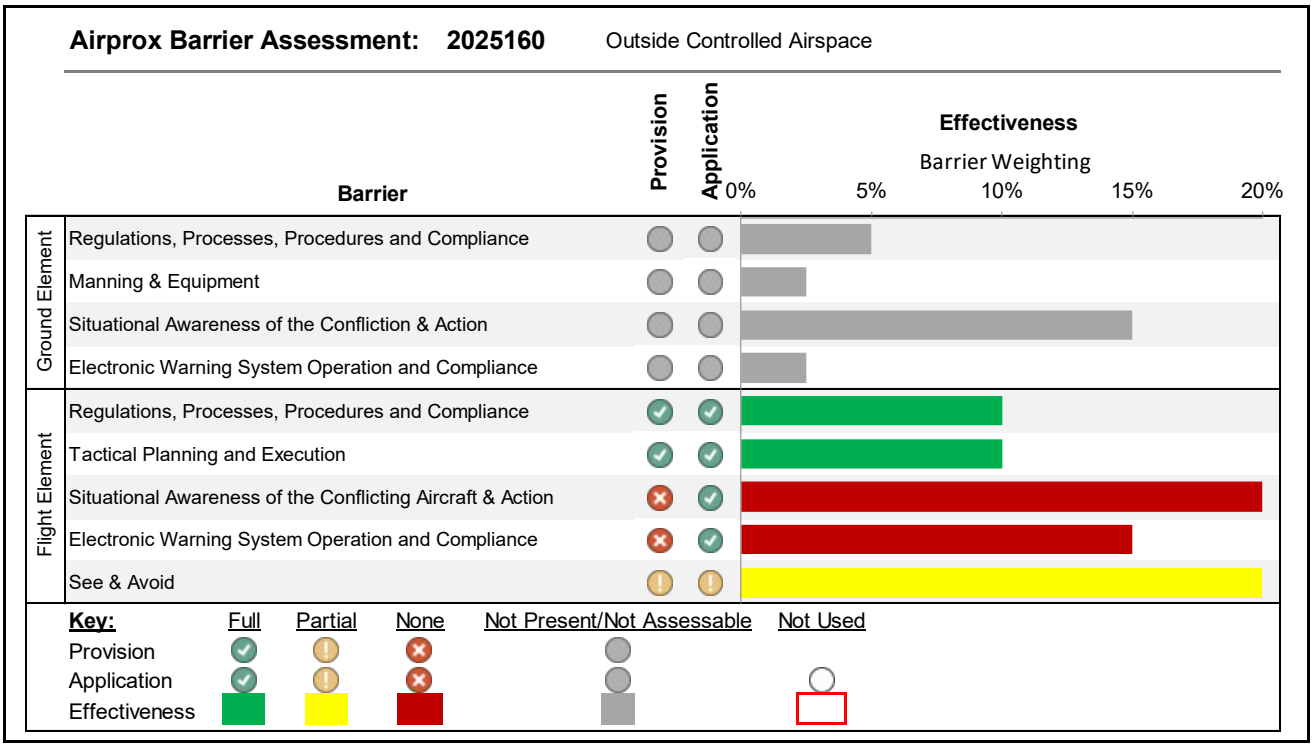
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither the Mavic 2 Pro operator nor the Phenom pilot had situational awareness of the presence of the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the electronic conspicuity fitted to the Phenom was unable to detect the Mavic 2 Pro.

See and Avoid were assessed as **partially effective** because the Phenom pilot had not seen the Mavic 2 Pro, and the Mavic 2 Pro operator had seen the Phenom just prior to CPA.



[5] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.